

CLAIMS

What is claimed is:

1. A method of controlling the usage of a wireless device
5 comprising the steps of:

obtaining a first set of coordinates in a specified
coordinate system representative of a first geographic
location;

in response to an attempt to establish a communication
10 involving said wireless device and another communication
device:

obtaining a second set of coordinates in said
specified coordinate system representative of a second
geographic location corresponding to the geographic
15 location of said wireless device;

determining based upon said first and second sets of
coordinates, whether said wireless device is at a
location where use of said wireless device is restricted;
and

20 based on the result of said determining step, if
said wireless device is at a location where use of the
device is restricted, preventing said attempted
communication involving said wireless device and said
other communication device.

25 2. The method of claim 1 further including the step of
permitting said attempted communication if said wireless device
is not at a location where use of said wireless device is
restricted.

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3. The method of claim 2 wherein said preventing step includes the step of generating a control message of a first type and said permitting step includes the step of generating a control message of a second type and forwarding one of said control messages of said first and second types to signal whether said attempted communication should be prevented or permitted.
4. The method of claim 3 wherein said determining step comprises the step of determining a first distance between said second geographic location specified by said second set of coordinates and said first geographic location specified by said first set of coordinates and said control message generating steps comprise the steps of generating said control message of said first type in the event said first distance is greater than a specified threshold and generating said control message of said second type in the event said first distance is less than said threshold distance.
5. The method of claim 1 wherein said wireless device is a wireless phone, said other communication device is another phone and said attempted communication is an attempted call involving said wireless phone and said other phone.
6. The method of claim 1 wherein said wireless device is operative to communicate via a data messaging protocol and said other communication device is operative to communicate via said data messaging protocol.
7. The method of claim 1 further including the steps of:

receiving as an input at an access point information corresponding to said first geographic location;

communicating said information corresponding to said first geographic location over a first communication network to
5 a first server communicably coupled to a database for storage in said database; and

storing said first geographic location in said database.

8. The method of claim 7 further including the steps of:

10 receiving at said access point a password input by a user;

communicating said password from said access point over said first communication network to said first server;

comparing said password input to said access point to a
15 stored password associated with a supervisory account; and

performing said storing step in the event said password input at said access point corresponds to said stored password.

9. The method of claim 8 further including the steps of:

20 associating at least one user account with said supervisory account, wherein each of said at least one user account is associated with a corresponding wireless device; and

storing in said database said information corresponding to said first geographic location in association with said one
25 of said at least one user account.

10. The method of claim 9 wherein said associating step comprises the step of associating a plurality of user accounts with said supervisory account; and

30 said storing step comprises the step of storing in said database said information corresponding to said first

geographic location in association with one of said plurality of user accounts.

11. The method of claim 1 wherein said step of obtaining said
5 first set of coordinates includes the steps of:
storing in a database a location identifier associated
with said first geographic location; and
converting said location identifier corresponding to said
first geographic location into said first set of coordinates in
10 said specified coordinate system and storing said first set of
coordinates in said database.

12. The method of claim 11 wherein said location identifier
comprises an address and said storing step comprises the step
15 of storing said address in said database

13. The method of claim 11 wherein said database is
communicably coupled to a first server and said converting step
comprises the steps of:
20 retrieving said location identifier from said database;
forwarding said location identifier to a location server;
converting said location identifier into said first said
of coordinates at said location server; and
forwarding said first set of coordinates to said first
25 server for storage in said database.

14. The method of claim 1 further including the steps of:
storing in a database a time specification,
utilizing said time specification and location
30 information corresponding to said first geographic location to
determine whether to permit said attempted communication

involving said wireless device and said other communication device.

5 15. The method of claim 14 wherein said time specification comprises a time period and said utilizing step comprises the step of determining whether a current time is within said time period.

10 16. The method of claim 14 wherein said time specification comprises at least one day of the week and said utilizing step comprises the step of determining whether a current day of the week matches said at least one day of the week.

15 17. The method of claim 14 wherein said time specification includes at least one date specification and said utilizing step comprises the step of determining whether a current date matches said at least one date specification.

20 18. The method of claim 1 further including the step of:
forwarding said control message to an external device;
and
determining at said external device, based on said control message, whether said attempted communication should be completed or terminated.

25 19. The method of claim 1 wherein said step of obtaining said second set of coordinates in said specified coordinate system comprises the step of obtaining said second set of coordinates from a global positioning system receiver disposed in said
30 wireless device.

20. The method of claim 19 further including the steps of:

communicating said first set of coordinates to said wireless device and retrievably storing said first set of coordinates in a memory in said wireless device, wherein said memory is in communication with a processor within said wireless device; and

responsive to the initiation of a communication from said wireless device to said other communication device:

retrieving said first set of coordinates from said memory using said processor within said wireless device;

performing said determining step within said processor utilizing said retrieved first set of coordinates and said second set of coordinates obtained from said global positioning system receiver; and

responsive to said performing of said distance determining step by said processor within said wireless phone, determining in said processor whether to prevent said communication from said wireless device to said other communication device.

21. The method of claim 1 further including the steps of:

responsive to said attempted communication involving said wireless device and said other communication device by one of said wireless phone and said communication device:

retrieving at least one cell sector identifier associated with the geographic location of said wireless phone;

forwarding said at least one cell sector identifier to a location server; and

generating said second set of coordinates within
said location server based upon said retrieved at least
one cell sector identifier.

5 22. The method of claim 21 wherein said cell sector
identifier retrieving step further includes the step of
retrieving a signal strength that is associated with each of
said at least one cell sector identifier, wherein said
forwarding step includes the step of forwarding said signal
10 strength associated with each of said at least one cell sector
identifier to said location server with the respective cell
sector identifier; and

 said second set of coordinates generating step comprises
the step of generating said second set of coordinates from said
15 at least one cell sector identifier and the signal strength
associated with each of said at least cell sector identifier.

23. A system of controlling the usage of a wireless device
comprising:

20 a storage device containing a user profile database, said
user profile database storing a first set of coordinates
representative of a first geographic location;

 at least one first processor in communication with said
user profile database, said at least first processor operative
25 in response to an attempt to establish a communication
involving said wireless device and another communication
device:

 to obtain a second set of coordinates representative
of a second geographic location corresponding to a
30 geographic location of said wireless phone;

to determine based upon said first and second set of coordinates whether said wireless device is at a location at which use of the wireless device is restricted;

5 to generate a control message of a first type in the event said determining step indicates that said wireless device is at a location at which the use of the wireless device is restricted; and

10 to generate a control message of a second type in the event said determining step indicates that said wireless device is at a location at which the use of the wireless device is not restricted and to utilize said distance in the determination whether the use of said wireless device is restricted.

15 24. The system of claim 23 wherein said at least one first processor is operative to determine a distance between said second geographic location specified by said second set of coordinates and said first geographic location specified by said first set of coordinates and to generate said control
20 message of said first type in the event said distance is less than a specified distance value and to generate said control message of said second type if said distance is greater than said specified distance value.

25 25. The system of claim 23 further including a wireless device having a global positioning system receiver disposed therein, said global positioning system operative to generate said second set of coordinates representative of the geographic location of said wireless phone.

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26. The system of claim 25 wherein said wireless device includes logic operative to forward said second set of coordinates to said at least one first processor for use in the determination of whether the wireless device is at a location
5 at which the use of the wireless device is restricted.

27. The system of claim 23 wherein said user profile database further includes a location identifier associated with said first geographic location, said system further including a
10 converter operative to generate said first set of coordinates from said location identifier.

28. The system of claim 27 wherein said location identifier comprises an address.
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29. The system of claim 27 wherein said converter comprises a location server.

30. The system of claim 23 wherein said at least one first
20 processor in communication with said user profile database is operative to calculate a distance between said first and second geographic locations using said first and second sets of coordinates and to generate a message indicating that said attempted communication should be prevented in the event the
25 distance between the first and second geographic locations is less than a predetermined threshold distance.

31. The system of claim 23 wherein said at least one first
processor in communication with said user profile database is
30 operative:

to retrieve at least one cell sector identifier indicative of the location of said wireless device;

to forward said at least one cell sector identifier to a location server; and

5 to receive from said location server said second set of coordinates.

32. The system of claim 31 wherein said at least one first processor in communication with said user profile database is
10 further operative:

to retrieve at least one signal strength value associated with at least some of said cell sector identifiers;

to forward to said location server, said at least one cell sector identifier and the associated signal strength
15 value; and

to receive from said location server said second set of coordinates derived from said at least one cell sector identifier and the associated signal strength value.

20 33. A system of controlling the usage of a wireless device comprising:

a supervisory control system comprising:

a storage device containing a user profile database, said user profile database storing a first set of
25 coordinates in a specified coordinate system representative of a first geographic location; and

at least one first processor in communication with said user profile database; and

a wireless device in communication with said supervisory
30 control system, said wireless device comprising:

a memory; and

at least one second processor in communication with
said memory;

said at least one first processor operative to forward
said first set of coordinates to said wireless device for
5 storage in said memory;

said at least one second processor operative in response
to an attempt to establish a communication from said wireless
device to another communication device:

to obtain a second set of coordinates in said
10 specified coordinate system representative of a second
geographic location corresponding to a geographic
location of said wireless device; and

to determine based upon said first and second set of
coordinates whether said wireless device is at a location
15 at which use of the wireless device is restricted;

to generate a control message of a first type upon a
determination that said wireless device is at a location
at which the use of the wireless device is restricted;
and

20 to generate a control message of a second type upon
a determination that said wireless device is at a
location at which the use of the wireless device is not
restricted.

25 34. The system of claim 33 wherein said wireless device
comprises a wireless phone.

35. The system of claim 34 wherein said wireless device
comprises a device operative to communicate using a data
30 messaging protocol.

36. A method of controlling communications between a wireless communication device and another communication device comprising the steps of:

storing within a database at least one parameter corresponding to at least one restriction on use of said wireless communication device for outgoing communications, said at least one restriction comprising at least one of a time of day restriction defining at least one time period during which an outgoing communication from said wireless communication device is not permitted, an accessibility restriction comprising at least one identifier associated with another communication device that cannot be reached from said wireless communication device, and a location restriction defining at least one location at which an outgoing communication from said wireless communication device is not permitted;

forwarding said at least one parameter from said database to said wireless communication device and storing said at least one parameter in a memory within said wireless communication device;

in response to an attempt to initiate a communication from said wireless communication device to said other communication device, retrieving said at least one parameter from said memory and determining via use of a processor within said wireless communication device, whether a connection of said communication from said wireless communication device to said other communication device is contrary to said at least one restriction;

in the event the connection of said communication from said wireless communication device to said other communication

device is not contrary to said at least one restriction, allowing the communication between said wireless communication device and said other communication device; and

5 in the event the communication from said wireless communication device to said other communication device phone is contrary to said at least one restriction, preventing the communication from said wireless communication device to said other communication device.

10 37. The method of claim 36, wherein said communication is a telephone call, said wireless communication device comprises a wireless phone, and said other communication device is another telephone and said preventing step includes the step of outputting a predetermined message for delivery to said
15 wireless phone indicating that said call cannot be connected due to a restriction on use.

38. The method of claim 36, wherein said accessibility restriction defining at least one identifier that cannot be
20 reached from said wireless communication device comprises a list of identifiers associated with other communication devices that are inaccessible from said wireless communication device, said method further including the steps of:

determining whether an identifier associated with said
25 other communication device is included in said list of identifiers; and

in the event said identifier is included in said list of identifiers, preventing said communication from being completed.

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39. The method of claim 37, wherein said predetermined message indicates that said other communication device associated with said identifier is inaccessible.

5 40. The method of claim 36, further including the step of:

determining whether an identifier corresponding to said other communication device is included in a list of identifiers that can always be reached; and

10 in the event the connection of said communication is contrary to a use restriction comprising one of said time, date and location restriction, and said identifier corresponding to said other communication device is included in said list of identifiers corresponding to other communication devices that can always be reached, allowing said communication between said
15 wireless communication device and said other communication device to proceed.

41. The method of claim 36, wherein said wireless communication device comprises a wireless phone, said other communication
20 device comprise another phone, said communication is a call from said wireless phone to said other phone, the method further including the steps of:

determining whether a predetermined allocation of time for a specified control period associated with said wireless
25 phone has been fully depleted;

determining whether an identifier corresponding to said other phone is included in a list of identifiers associated with other phones that may always be called; and

30 in the event said predetermined allocation of time associated with said wireless phone has been fully depleted and said identifier corresponding to said other phone is in said

list of identifier that may always be called, connecting said wireless phone to said other phone.

42. The method of claim 36 wherein said determining step
5 comprises the step of executing program code on said processor within said wireless device to determine whether the connection of said communication is contrary to said at least one restriction.

10 43. Apparatus for controlling usage of a wireless device comprising:

a first memory within said wireless device for storing at least one parameter specifying at least one restriction on use of said wireless device for outgoing communications, said at
15 least one restriction on use comprising at least one of a time of day restriction defining times during which an outgoing communication from said wireless device is not permitted, an accessibility restriction defining at least one identifier associated with another communication device that is
20 inaccessible for outgoing communications from said wireless device, and a location restriction defining at least one restricted location from which an outgoing communications from said wireless device is not permitted;

at least one processor within said wireless device;
25 a second memory operable to store program code executable on said at least one processor; and

program code stored in said second memory and executable on said at least one processor, said program code operable:

to detect the initiation of a communication from
30 said wireless device to said other communication device and, responsive to said initiation, to determine whether

a connection of said communication between said wireless device and said other communication device is contrary to said at least one restriction;

5 to permit said communication from said wireless device to said other communication device in the event said connection is not contrary to said at least one restriction; and

10 to prevent said communication from said wireless device to said other communication device in the event said communication is contrary to at least one of said at least one restriction.

44. The apparatus of claim 43 wherein said first and second memories comprise different portions of the same memory.

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45. A system for controlling usage of a wireless phone, said system operative in conjunction with a billing system including a first server operable to execute a billing process and a first database containing parameters defining billing parameters applicable to said wireless device, said system comprising:

20 a second server operable to execute a supervisory process for controlling usage of said wireless phone as an overlay to said billing process;

25 a second database containing a value defining a time duration that said wireless device may be used within a predetermined period, said second database being communicably coupled to said second server;

 said second server being operative:

30 to maintain a record of time usage for said wireless phone within said predetermined period;

5 to prevent a call involving said wireless phone from being connected in the event said record of time usage indicates that said wireless phone has been used within said predetermined period for a period equal to said time duration; and

10 to allow a call involving said wireless phone to be connected in the event said record of time usage indicates that said wireless phone has been used in said predetermined period for a period less than said time duration.

15 46. The system of claim 45 wherein said first and second servers comprise a single server operative to execute said billing process and said supervisory process.

47. The system of claim 45 wherein said first database and said second database comprise portions of a single database.

20 48. The system of claim 45 wherein said predetermined period comprises a calendar month and said value comprises a specified number of minutes.

25 49. The system of claim 45 wherein said second database includes an always accessible number associated with another communication device that may always be called by said wireless phone and said second server is operative to exclude time involving calls between said wireless phone and said other communication device from said record of time usage.

30 50. A computer based method of controlling the use of a wireless device comprising the steps of:

storing in a database a supervisory account identifier associated with a supervisory account, said supervisory account including information pertaining to the use of at least one wireless device including said wireless device, said

5 information being password protected and at least some of said information being modifiable by said account administrator;

storing in said database in association with said supervisory account identifier at the request of said account administrator, a wireless device identifier associated with
10 said wireless device and at least one modifiable restriction governing the use of said wireless device by a wireless device user, wherein said wireless device user is an individual distinct from said account administrator;

storing in said database in association with said
15 supervisory account identifier, a code value corresponding to a cut-through code, wherein said code-value is useable by said account administrator to permit said account administrator to establish communication with said wireless device at a time when the use of said wireless device is restricted;

20 receiving an indication of an intended communication from a communication device to said wireless device;

determining whether said intended communication violates said at least one restriction governing the use of said wireless device prior to connection of said communication
25 between said communication device and said wireless device;

in the event said determining step indicates that the connection of said intended communication violates said at least one restriction and an input value corresponding to said stored code value is not received from said communication
30 device within a predetermined time interval, generating a

control message of a first type to prevent said communication from proceeding; and

in the event said determining step indicates that the connection of said intended communication would violate said at least one restriction pertaining to the use of said wireless device and said input value corresponding to said code value code is received from said communication device within said predetermined time interval, generating a control message of a second type to allow said communication to be proceed.

51. The method of claim 50 wherein said step of storing said code value corresponding to said cut-through code comprises the step of storing in said database a user name and utilizing a value corresponding to said user name as said code value.

52. A computer based system for controlling the use of a wireless device by a wireless device user, said system comprising:

a database stored in a storage device, said database containing a supervisory account identifier associated with a supervisory account, said database including information pertaining to the use of at least one wireless device, including said wireless device, said information contained in said database being password protected and modifiable by a supervisory account administrator;

said database containing in association with said supervisory account identifier, a wireless device identifier associated with said wireless device and at least one parameter defining at least one restriction governing the use of said wireless device by said wireless device user, wherein said

wireless device user is an individual distinct from said account administrator;

said database a code value corresponding to a cut-through code, wherein said code value is stored in association with said supervisory account identifier and wherein said code-value is useable by said account administrator to establish communication with said wireless device at a time when the use of said wireless device is restricted;

at least one computer operative to:

receive an indication of an intended communication from a communication device to said wireless device;

determine using said at least one parameter whether said intended communication violates said at least one restriction governing the use of said wireless device prior to connection of said communication between said communication device and said wireless device;

generate a control message of a first type to prevent said communication from proceeding in the event said at least one computer determines that the connection of said intended communication would violate said at least one restriction and an input value corresponding to said stored code value is not received from said communication device within a predetermined time interval; and

generate a control message of a second type to allow said communication to proceed in the event said at least one computer determines that the connection of said intended communication would violate said at least one restriction pertaining to the use of said wireless device and said input value corresponding to said code value code is received from said communication device within said predetermined time interval.

53. The system of claim 52 further including:

an access point and a web server communicably coupled via a data network;

5 a data path between said web server and said database;

said access point operative to receive as an input from said supervisory account administrator a user name and to communicate said user name to said database;

10 said database operative to store said user name in association with said supervisory account identifier; and

said at least one computer being operative to utilize said user name stored in said database as said code value.

54. The system of claim 53 wherein said data path includes

15 said at least one computer.

55. A method of communicating information regarding the usage of a wireless device comprising the steps of:

20 storing in a database an identifier of said wireless device in association with an identifier associated with a supervisory account, wherein information in said database pertaining to said supervisory account is modifiable by a supervisor having administrative responsibility for said supervisory account;

25 storing in said database in association with said wireless device identifier at least one parameter defining at least one alert condition relating to the usage of said wireless device;

30 maintaining for said at least one wireless device a time measure indicative of the cumulative usage of said wireless device within a control period;

determining whether said alert condition has occurred by utilizing said time measure and said at least one parameter; and

5 in the event said determining step indicates that said alert condition has occurred, communicating an alert message to said supervisor.

10 56. The method of claim 55 wherein said at least one parameter includes a time value defining the amount of time said wireless device may be used prior to the transmission of said alert message to said supervisor.

15 57. The method of claim 56 wherein said communicating step further includes the step of communicating said alert message to said supervisor when said determining step indicates that said time measure equals said time value.

20 58. The method of claim 56 wherein said communicating step further includes the step of communicating said alert message to said supervisor each time said determining step indicates that said time measure equals an integral multiple of said time value within said control period.

25 59. The method of claim 58 further including the step of resetting said time measure at the beginning of each control period.

30 60. The method of claim 55 wherein said communicating step comprises the step of communicating said alert message to said supervisor via an audible message directed to a telephone

number specified by said supervisor and stored in said database.

5 61. The method of claim 55 wherein said communicating step comprises the step of communicating said alert message to said supervisor via a text message directed to a telephone number specified by said supervisor and stored in said database.

10 62. The method of claim 55 wherein said communicating step comprises the step of communicating said alert message to said supervisor via an email message directed to an email address specified by said supervisor and stored in said database.

15 63. The method of claim 55 wherein said alert message includes an indication of said measure indicative of said cumulative usage of said wireless device within said control period.